Remarks

Applicant wishes to point out that Claim 1 of claimed invention is characterized by arranging a wire grid polarizer (44) to be associated with a quarter-wave retardation (43) in order to polarize the light beams from a light source in a more efficient way.

As to Claim 11, the light source, the retardation and the polarizer are arranged in a straight line. Therefore, the light path of the present invention is a straight line, the alignment of the light source, the retardation and the polarizer is fairly easy, and the total volume of the projection illumination device of the present invention is fairly small.

As to Claim 20, the illumination device can provide light with one polarity (for example, pure p-polarized light). Therefore, in the LCD projection system of the claimed invention, the light before entering the PBS of the imaging apparatus only has one polarity so that the loading of thermal expansion of the PBS is reduced, and the polarization conversion efficiency is raised.

Applicant submits that in Ito (U.S. Pub. No. 2001/0028412), the element (40B) in FIG. 7 only refers to a conventional PS converter (14) as shown in Figs. 1 to 3 of the present application, rather than a wire grid polarizer as claimed. Specifically, with reference to Paragraph [105] of Ito, "The polarization conversion element 40B differs from the conversion element (40) in that the numbers of the polarization separation films, the reflection films, and transmissive members disposed thereamong are large, as compared with the case of the element (40) of the first embodiment. However, the rest of the element (40B) does not differ from the corresponding part of the element (40)." Further, referring to Figs. 2a, 2b, 3a, 3b and Paragraphs [66] and [67] of Ito, the conversion element (40) is a conventional PS converter, and therefore, the polarization conversion element (40B) can also be regarded as a conventional PS converter. Although the examiner asserts that the element (40B) of U.S. Pub. No. 2001/0028412 has the same function as the wire grid polarizer of the claimed invention, applicant submits that they are still different in structure. Taking FIG. 7 of Ito for example, two

lens arrays (220, 230) are needed and must be aligned and fit the polarization conversion element (40B), which increases the manufacturing difficulty and cost, and makes no improvements in light illumination efficiency.

As for Davis et al. (U.S. 5,822,029), in view of Fig. 1 and Column 2, Lines 40-62, the filter 18 is a cholesteric filter comprising a first layer 20 and a second layer 22. The first and second layers 20, 22 each comprise patterned cholesteric liquid crystal polymer films. Thus, each region of the filter 18 transmits only one of the three primary light wavelengths, the other two wavelengths being excluded. This is very different from the claimed invention. In the invention, only p-polarized light can pass through the wire grid polarize, and non p-polarized light is reflected to further transform to another polarizable light. Therefore, the combination of U.S. Pub. No. 2001/0028412 and U.S. 5,822,029 cannot obtain the claimed invention, and they cannot serve as a basis for negating the inventive step of the claimed invention.

As for Li (U.S. Pub. No. 2005/0073653), in view of FIG. 7, the projection illumination device comprises a light source 708, a reflector 702, a wave plate 772, an light pipe, a PBS 766 and return reflector 788. In comparison with the present invention, the projection illumination device disclosed by Li has three additional elements, namely the reflector 702, the light pipe and the return reflector 788. Additionally, the light source 708 must be disposed on the first focal point 704, and the light pipe must be disposed on the second focal point 706, which results in difficulty of alignment and large volume of total projection illumination device. Finally, the light beams in the projection illumination device must be reflected several times, which may cause loss of the light beams. Specifically, in FIG. 7, the light 710 is unpolarized, and therefore, after passing through the PBS 766, part of the light 710 (light 770) must be reflected back by the return reflector 788. As a result, the light beams will pass through the PBS 766 several times, which raises the loading the thermal expansion of the PBS 766. In comparison, in Claim 20 of the claimed invention, the light beams before entering the PBS are polarized and therefore, they pass through the PBS only once. Additionally, the combination of U.S. Pub. No. 2001/0028412, U.S. 5,822,029 and U.S.

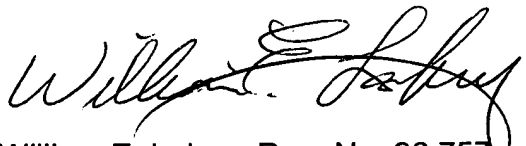
Pub. No. 2005/0073653 cannot obtain the claimed invention; and they cannot serve as a basis for negating the inventive step of the claimed invention.

Given the above, applicant submits that there is no reason for a person skilled in this field to possess any capability, when the invention was made, to combine the technology provided by Ito, Davis et al. and Li to resolve the polarization issue as claimed by applicant.

Conclusion

It is believed that no fees are due in connection with this Amendment C other than the fee of $395.00 included with the Request for Continued Examination. If, however, the Commissioner determines a fee is due, he is hereby authorized to charge said government fees to Deposit Account No. 19-1345.

Respectfully submitted,



William E. Lahey, Reg. No. 26,757
SENNIGER POWERS
One Metropolitan Square, 16th Floor
St. Louis, Missouri 63102
(314) 231-5400

WEL/lrw
Mail Stop RCE
Express Mail Label No. EV 621122880 US